

REMARKS

In accordance with the foregoing, claims 1 and 3 have been amended. Support of the amendment for claim 1 may be found on page 18, lines 3-17, and in FIG. 5 of the application as filed.

Claims 1, 3 and 5 are pending and under consideration.

CLAIM OBJECTION

Claim 3 is objected to because the phrase "is in a range of 0.02 to 0.2" was inadvertently absent on page 2 of the response filed on June 29, 2010. With this amendment, the issue has been resolved. Applicants respectfully request that the objection of claim 3 be removed.

CLAIM REJECTIONS UNDER 35 U.S.C. §103

(A) Regarding Claims 1 and 3

Claims 1 and 3 are rejected under 35 U.S.C. §103 as being obvious over Ito (JP 2000-255579) ("**Ito**") in view of Ingle (U.S. Publication 2004/0083964) ("**Ingle**").

The Office Action asserts that **Ito** discloses a method in which the flow amount ratio decreases continuously while forming the first thin film but the ratio increases for forming the final thin film. However, the Office Action admits that **Ito** does not disclose forming the final thin film with the flow amount reaching 1000 and lasting for 1 to 3 seconds.

The Office Action also argues that **Ingle** discloses a method for making a silicon oxide film involving initially a low flow amount ratio of precursor to oxidizing gas, and that such ratio is increased in order to increase throughput. The Office Action concludes that it would have been obvious to increase the flow ratio of **Ito** after a first film by increasing the flow rate of the precursor as suggested by **Ingle**.

Applicants respectfully disagree with the Office Action in light of the amendment for at least the following reasons.

Amended claim 1 now recites:

*“forming a first thin film by plasmatizing the mixture gas while varying a supply flow amount ratio of the monomer gas with respect to the reactive gas; and
forming a final thin film by increasing the supply flow amount ratio of the monomer gas with respect to the reactive gas after the forming of the first film, wherein
the forming of the first thin film is performed under a first condition that the supply flow amount ratio of the monomer gas with respect to the reactive gas decreases continuously from an initial value into a specific value of 0.05 or lower within 2 to 5 seconds at a constant speed, and the supply flow amount of the monomer gas is gradually reduced while the supply flow amount of the oxidizing reactive gas is maintained at a substantially fixed level; and
the forming of the final thin film is performed under a second condition that the supply flow amount of the monomer gas increases at a constant speed and the supply flow amount of the reactive gas decreases at a constant speed, while the amount of the mixture gas is maintained at a substantially fixed level, the supply flow amount ratio of the monomer gas with respect to the reactive gas reaches 1000 or more, and the forming of the final thin film lasts for 1 to 3 seconds.”*

Ito merely discloses features of “an initial flow ratio” and “the flow amount ratio decreases continuously while forming a first thin film”. However, as the Office Action admits, **Ito** does not disclose or suggest that *“the supply flow amount ratio of the monomer gas with respect to the reactive gas reaches 1000 or more, and the forming of the final thin film lasts for 1 to 3 seconds.”*

In addition, with respect to the flow amounts for the monomer gas, the reactive gas and the mixture gas as part of the second condition, **Ito** also does not disclose or suggest that *“the supply flow amount of the monomer gas increases at a constant speed and the supply flow amount of the reactive gas decreases at a constant speed, while the amount of the mixture gas is maintained at a substantially fixed level”* as recited in amended claim 1. Thus, **Ito** would not have rendered obvious amended claim 1.

Ingle merely discloses an increasing supply flow amount ratio of the monomer gas with respect to the reactive gas. Furthermore, **Ingle** only discloses the formation of the film in the

time frames such as 20 to 120 seconds (**Ingle**, FIG.3), or 50 to 350 seconds (**Ingle**, FIG. 5). In contrast, **Ingle** does not disclose or suggest that *"the supply flow amount ratio of the monomer gas with respect to the reactive gas reaches 1000 or more, and the forming of the final thin film lasts for 1 to 3 seconds"* as recited in amended claim 1.

Furthermore, with respect to the flow amounts for the monomer gas, the reactive gas and the mixture gas as part of the second condition, **Ingle** does not disclose or suggest the second condition that *"the supply flow amount of the monomer gas increases at a constant speed and the supply flow amount of the reactive gas decreases at a constant speed, while the amount of the mixture gas is maintained at a substantially fixed level"* as recited in amended claim 1. Thus, **Ingle** would not have rendered obvious amended claim 1.

When **Ito** and **Ingle** are combined, the combined teachings of **Ito** and **Ingle** would still not have rendered obvious amended claim 1. The deficiency of **Ito** with respect to the features noted above could not be overcome by **Ingle** because **Ingle** is also deficient with respect to these features. Therefore, one having ordinary skill in the art would not have been prompted by **Ito** and **Ingle** combined to arrive at the invention of amended claim 1. Thus, amended independent claim 1 and dependent claim 3 are patentable over **Ito** and **Ingle**, individually or as a combination.

Applicants respectfully request that the rejection of claims 1 and 3 under 35 U.S.C. §103 over **Ito** and **Ingle** be withdrawn.

(B) Regarding Claim 5

Claim 5 is rejected under 35 U.S.C. §103 as being obvious over **Ito** in view of **Ingle**, and further in view of Verzaro (U.S. Patent 5,569,497) ("**Verzaro**").

The Office Action admits that **Ito** does not teach controlling reflected power to be 10% or lower than the supplied high frequency power. However, the Office Action argues that **Verzaro** discloses a plasma CVD method in which the reflected power is controlled to be 10% or lower than the supplied high frequency power. Consequently, the Office Action concludes that it would have been obvious to control the reflected power in the process of **Ito** as suggested by **Verzaro** in order to obtain maximum efficiency in the power supplied to the plasma.

Applicants respectfully disagree with the Office Action for at least the following reasons.

As noted above, amended independent claim 1 and dependent claim 3 are patentable over **Ito** and **Ingle** combined. Even when **Verzaro** is added to the teachings of **Ito** and **Ingle**, the combined teachings of **Ito**, **Ingle** and **Verzaro** would still not have rendered obvious dependent claim 5, which is dependent from claims 1 or 3. This is because the deficiency of **Ito** and **Ingle** with respect to the forming of the final thin film under the second condition cannot be overcome with the teaching of **Verzaro** of controlling the reflected power to be 10% or lower than the supplied high frequency power. Furthermore, **Verzaro** discloses a deposition time period of, for instance, 180 minutes (**Verzaro**, Example 1, column 8, lines 15-17) or 59 minutes (**Verzaro**, Example 4, column 9, lines 34-36). In view of this aspect, **Verzaro** could not have remedied the deficiency of **Ito** and **Ingle** with respect to the forming of the final thin film. Therefore, one having ordinary skill in the art would not have been prompted by the combined teachings of **Ito**, **Ingle** and **Verzaro** to arrive at the invention according to dependent claim 5.

Applicants respectfully request that the rejection of claim 5 under 35 U.S.C. §103 over **Ito**, **Ingle** and **Verzaro** be withdrawn.

CONCLUSION

Thus, there being no further outstanding objections or rejections, the application is submitted as being in condition for allowance which action is earnestly solicited.

If the Examiner has any remaining issues to be addressed, it is believed that prosecution can be expedited and possibly concluded by the Examiner contacting the undersigned attorney for a telephone interview to discuss any such remaining issues.

If there are any underpayments or overpayments of fees associated with the filing of this Amendment, please charge and/or credit the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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